

Chapter B

Introduction

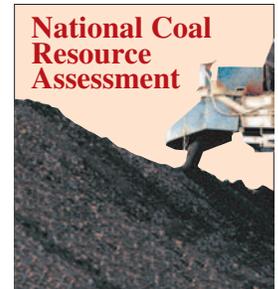
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Chapter B of

Resource Assessment of the Springfield, Herrin, Danville, and Baker Coals in the Illinois Basin

Edited by J.R. Hatch *and* R.H. Affolter

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Introduction

By J. R. Hatch¹ and R. H. Affolter¹

In the Illinois Basin, coal-bearing rocks of Pennsylvanian age underlie most of Illinois (36,800 mi²), and parts of southwestern Indiana (6,500 mi²) and northwestern Kentucky (6,400 mi²) (fig. 1). Rocks of Pennsylvanian age were formed between about 325 and 290 million years before present.

Coal was first reported in what is now Illinois by French-Canadian explorers who noted an outcrop along the Illinois River on a map they made in the 1670's. In Illinois, coal production began in the early 1800's (U.S. Energy Information Administration, 1998). In Indiana, coal was first discovered along the Wabash River in 1736. In 1832, coal was being advertised for sale; in 1837, the first coal company was officially incorporated, and by 1840, coal was being shipped on flatboats on the Wabash and other rivers. The first recorded coal production in western Kentucky was in 1820 in Henderson and Muhlenburg Counties, and W. W. Mather (1839) mentioned several surface mines and local openings in western Kentucky in his "Report on the Geological Reconnaissance of Kentucky."

From these early beginnings, coal mining in the Illinois Basin has made a significant contribution to the Nation's economy. From 1890 to 1998, about 5.6 billion short tons of coal were produced from Illinois, about 2.5 billion short tons from western Kentucky, and about 2.1 billion short tons from Indiana (U.S. Energy Information Administration, 1998; Carey and Hiatt, 2000; U.S. Energy Information Administration, 2000; Weisenfluh and others, 1998). During 2000, coal production from the Illinois Basin was about 88 million short tons (Freme, 2001).

During the last 100 years, a number of assessments of the original and remaining coal resources, coal compositions, and recoverable coal reserves in the Illinois Basin have been completed. For Illinois, the most significant of the coal-quantity assessments include those of DeWolf (1908), Cady (1952), Hopkins and Simon (1974), Treworgy and others (1978), Treworgy and Bargh (1982), and Treworgy and others (1997). For Indiana, significant coal quantity assessments are those of Ashley (1899), Campbell (1913), and Spencer (1953). For western Kentucky, they include Smith and Brant (1980) and Weisenfluh and others (1998). Assessments of coal quality for Illinois include Cady (1935, 1948), Gluskoter and Simon (1968), and Gluskoter and others (1977); for Indiana, Hasenmueller and Miller (1992), Hasenmueller (1994), Oman and others (1992), and Mastalerz and Harper (1998); and for western Kentucky, Cobb and others (1985) and Currens (1986).

The goal of the current coal assessment in the Illinois Basin is to provide an overview of the geologic setting, coal distribution, and estimates of the quantity, quality, and recoverability of the remaining coal resources. These estimates are important to

- (1) utilities and other major users of coal who need to determine what quantity and quality of coal is mineable at current prices,
- (2) state and county governments who must plan for the infrastructure necessary to support coal mining (for example, roads, housing, and schools),
- (3) companies that provide services to the mining industry (for example, railroads),
- (4) federal and state regulators concerned with the environmental impacts of coal mining and utilization (for example, reclamation, atmospheric emissions, and coal combustion waste disposal) (Treworgy and Bargh, 1982).

This assessment is part of the U.S. Geological Survey's National Coal Resource Assessment Program (NCRA). Other areas studied as part of this program include the Colorado Plateau, Northern Rocky Mountains and Great Plains, Northern and Central Appalachian Basin, and Gulf Coast Coal Regions of the United States (fig. 2). This assessment is different from previous coal assessments in that the major emphasis is placed on coals that are most likely to provide energy over the next few decades (Gluskoter and others, 1996).

The objectives of this coal resource assessment in the Illinois Basin are to

- (1) Compile the information needed to assess the coals that are most likely to be mined in the next 10–20 years. For the Illinois Basin, most past, current, and expected future coal production will be from the Springfield, Herrin, Danville, and Baker Coals.
- (2) Create publicly available digital databases for the assessed coals that can be rapidly accessed and analyzed to provide information for decision-making by government, industry, and the public. These digital databases will contain all publicly available point-source data on thickness, depth, and coal-quality for the basin. These databases can be updated as new information becomes available.
- (3) Produce digital state- and basin-wide maps for the Springfield, Herrin, Danville, and Baker Coals, depicting thickness, elevation (structure), mined-out areas, and areas where the coals potentially may be stripped or recovered from underground mines. These maps can be used as a basis to show where coal mining may be restricted because of land use, industrial, social, or environmental factors.
- (4) Provide (a) reviews of Illinois Basin coal production history and previous coal assessments, (b) descriptions of coal assessment methodologies, and (c) an update of estimates of the remaining coal resources for the Springfield, Herrin, Danville, and Baker Coals in the basin.

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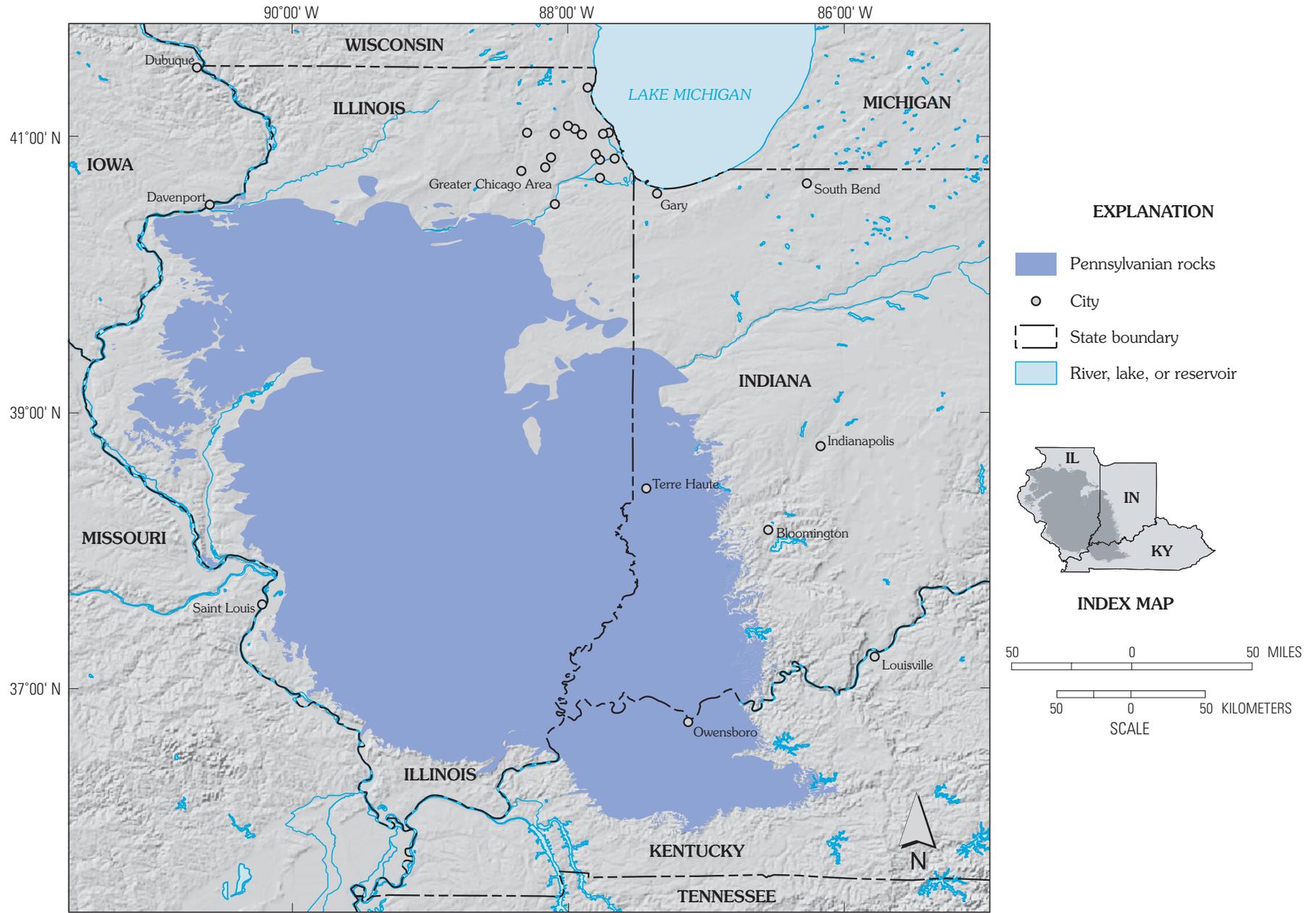


Figure 1. Map showing extent of the Illinois Basin as defined by the outcrop or subcrop of the Pennsylvanian rocks in Illinois, Indiana, and Kentucky. This illustration was produced from regional shapefiles contained in the Illinois Basin ArcView project (Gunther and others, this publication).

Northern Rocky Mountains and Northern Great Plains

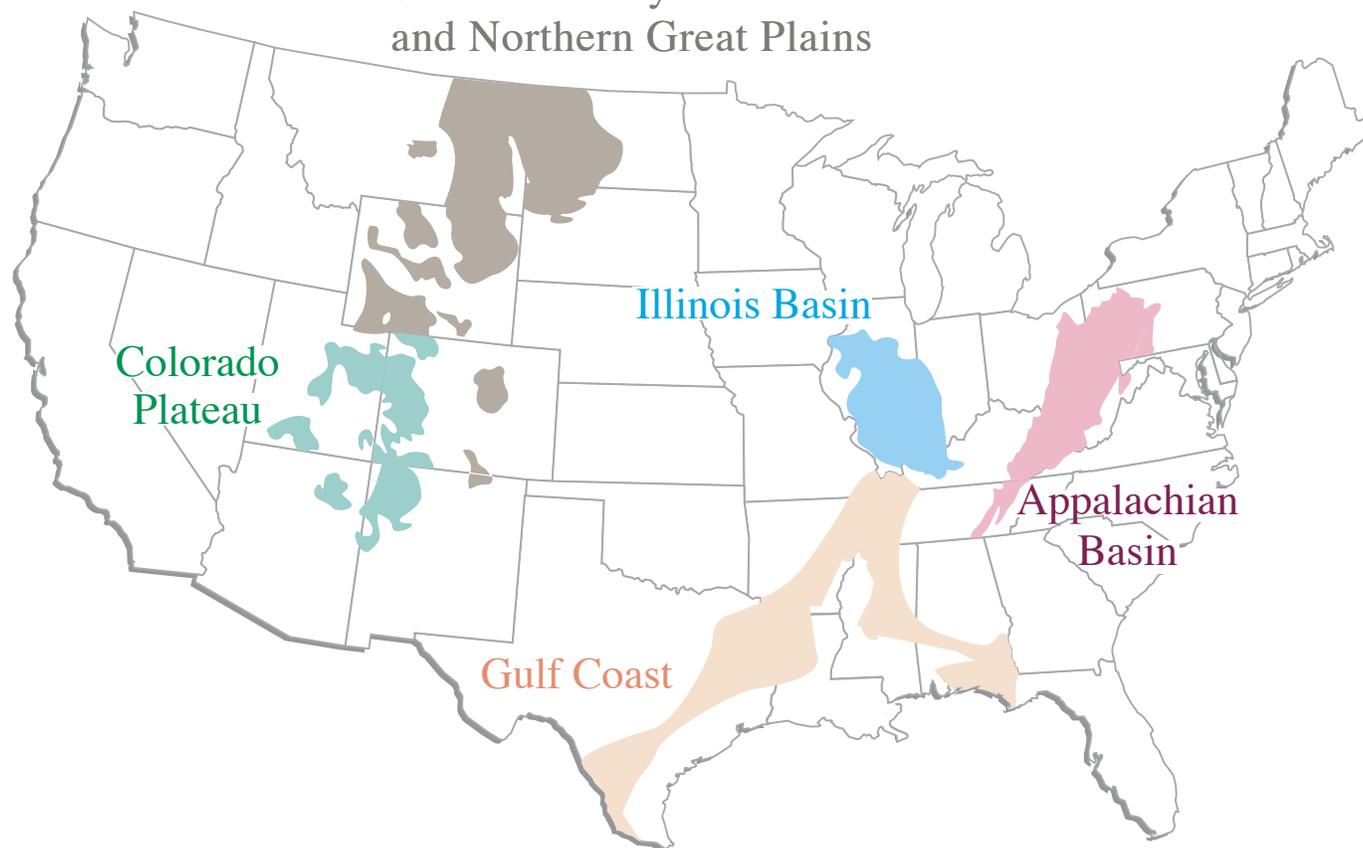


Figure 2. Map showing location of the Illinois Basin study area in the United States in relation to other areas assessed during the National Coal Resource Assessment Project.

Acknowledgments

The Illinois Basin assessment was completed in cooperation with groups of multidisciplinary scientists, technicians, and computer specialists from the U.S. Geological Survey, Illinois State Geological Survey, Indiana Geological Survey, and Kentucky Geological Survey. These three state surveys make up the Illinois Basin Consortium (IBC), which was created to coordinate and complement geologic studies within the basin. Trade and company names used in this report are for descriptive purposes only and do not imply endorsement by the U.S. Geological Survey.

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